Turin 1999-0078con

IN THE CLAIMS:

Claims 1-22 (Cancelled)

23. (Currently Amended) A method executed in a receiver for maximum a posteriori (MAP) decoding of an input information sequence, **X**, that includes [[a]] steps of receiving a signal, forming a received sequence **Y**, decoding the received sequence, and outputting a decoded result, where the decoding is characterized by:

iteratively maximizing an auxiliary function that includes a product of elements $p_{ij}(X,Y)$ of a probability distribution matrix $\mathbf{P}(X,Y)$.

24. (Currently Amended) A method executed in a receiver for maximum a posteriori (MAP) decoding of an input information sequence, **X**, that includes [[a]] steps of receiving a signal, forming a received sequence **Y**, decoding the received sequence, and outputting a decoded result, where the decoding is characterized by:

iteratively maximizing an auxiliary function that includes a product of elements $p_{ij}(X,Y)$ of a probability distribution matrix $\mathbf{P}(X,Y)$

~~The method of claim 23~~ where the input information signal travels through a channel represented by a Hidden Markov Model (HMM) to reach said receiver, and said auxiliary function is proportionally related to $\prod_{t=1}^{T} p_{i_{t-1},i_t}(X_t, Y_t)$ where

$p_{ij}(X,Y) = \Pr(j,X,Y \mid i)$, are conditional probability density functions of an information element X of information sequence **X** that corresponds to a received element Y of sequence Y after the HMM transfers from a state i to a state j

25. (Currently Amended) A receiver including at least one processor and an associated memory that contains ~~containing an~~ instructions for said at least one processor ~~module~~ that, when executed ~~in a processor on~~ a received sequence of information, perform[[s]] process steps that combine to effect maximum a posteriori (MAP) decoding of the received sequence to identify a sent sequence, which ~~process steps~~ decoding comprises the steps of:

iteratively generating a sequence of one or more decode results starting with an initial decode result; and

outputting one of adjacent decode results as a decode of the input information sequence if the adjacent decode results are within a compare threshold, wherein the step of iteratively generating comprises:

a. generating the initial decode result as a first decode result;

b. generating a second decode result based on the first decode result and a model of the channel;

c. comparing the first and second decode results;

d. replacing the first decode result with the second decode result; and

e. repeating b-d if the first and second decode results are not within the compare threshold.